MARKET BULLETIN

Vol. 97 • Num. 3

Est. SCDA SCDA

1913

FILLING THE GAPS

SCDA'S NEW GAP OUTREACH COORDINATOR EXPLAINS HOW SHE CAN HELP

INTERVIEW BY EVA MOORE

Blakely Atkinson is the GAP Program Coordinator for the South Carolina Department of Agriculture. She spoke with Market Bulletin about how her program works for South Carolina farmers.

What is GAP?

GAP, or Good Agricultural Practices, is a voluntary audit based on the Food Safety Modernization Act's Guide to Minimize Microbial Food Safety Hazards in Fresh Fruit and Vegetables. This audit can show buyers and consumers that a farm is taking extra steps to reduce the risk of foodborne illness associated with fresh produce. GAP involves record keeping, water testing and maintenance, cleaning, and sanitizing, to name a few key practices. A lot of growers already have good agricultural practices in place.

Why would a farm want to be GAP certified?

While a GAP audit is voluntary and not required by law, some buyers require GAP certification to do business. If an operation becomes GAP certified, it can lead to additional market opportunities. GAP certification can also maintain or improve your operation's overall success, as the recordkeeping and documentation required may help you reach a new level of organization.

What services does SCDA's new GAP Outreach and Education Program offer?

The SCDA GAP Outreach and Education Program offers assistance to help growers prepare for GAP audits. Training sessions will be offered throughout the upcoming year for growers, so keep checking the schedule located on the SCDA GAP page. As the new GAP Program Coordinator, I will also be making on-farm visits to help growers with writing their food safety plan and making sure their operations are GAP audit ready! Another awesome aspect of the Program is the Cost Share Reimbursement offered by SCDA to assist with

GAP audit costs. The cost share reimburses farmers 90% of the costs associated with a GAP audit.

Who performs the actual GAP audit?

While a GAP audit is a USDA certification, an SCDA auditor will be completing the audit to submit to the USDA.

How can people get in touch with you?

Getting in touch with me is simple! There is a new



GAP webpage on SCDA's website that contains resources and information pertaining to GAP, including a schedule of upcoming events as well as an Intake Application. This Application will serve as a record for me and will notify me to get in touch with you if you are interested in GAP training. If you have any additional questions, feel free to contact me via email or phone. My contact information is located on the GAP webpage as well.

What do you like best about this job?

I love every aspect of working with SCDA, but as the GAP Program Coordinator, the interaction I have with the growers in our great state of South Carolina is what I love the most. I love agriculture, people, and teaching, and this position allows me to combine the three to really make a difference in helping growers with new opportunities and helping improve consumer safety!

Get in touch with GAP

Blakely Atkinson, GAP Program Coordinator

blatkinson@scda.sc.gov

803-939-5754

agriculture.sc.gov/
good-agricultural-practices-gap



FACE TIME

epartment staff
members and
I have been
making the rounds of
meetings across South
Carolina — and talking to
lots of farmers.

February 2, 2023

The South Carolina
Agritourism Association's annual meeting always features an impressive agenda, and this year's meeting had the largest turnout ever. Agritourism has grown astronomically in South Carolina — there are now 545 agritourism farms around the state.



I visited with cotton growers at the annual South Carolina Cotton Growers Meeting. Held in Santee, this was a good opportunity to see what the year might hold for the cotton industry and market. It's been a strong couple of years for South Carolina cotton. One important session at that meeting was an update from Chief Chemist Leslie Beaty on the SCDA seed laboratory. Our seed lab conducts germination and purity testing for citizens, farmers, businesses, and wholesalers, and is thus a crucial part of the industry.

Next on my agenda was the annual peanut meeting, also held in Santee. They had what looked like a record turnout. Farmers learned about some new variety trials and how precision ag is being used in peanut research.

I spoke at the South Carolina Specialty Food Association Meeting. I have a lot of respect for the entrepreneurial spirit that leads these foodmakers to do what they do.

I found some time in there to join Lt. Gov. Pamela Evette and Duane Parrish, Director of the South Carolina Department of Parks, Recreation and Tourism, to announce the Chef Ambassadors for 2023. You can read all about these fine chefs — and their connection to agriculture — on page 8 of this issue. It's a dynamic group this year.

Next up is the NASDA
Winter Policy Conference
in Washington — always
a good opportunity to
talk about our federal
priorities for agriculture.
One big topic this year
will be WOTUS, the
Waters of the United
States final rule that EPA
recently released. For
years we've been asking
for clarity for farmers,
and this rule is a step
backwards.

And then of course there's the Southeastern Wildlife Expo in Charleston, South Carolina, set this year for Feb. 17–19. Whew! Stop by the big tent trimmed in red and with a barn attached. We'll be in the middle of Marion Square.

Hugheleathers-

UPCOMING EVENTS



Craft Pop-Up — Greenville

February 11 • 9 am – 1 pm

Join us for a one day only Craft Pop-Up event! Shop handmade crafts, fresh flowers, candles, pottery, jewelry, and soaps by local vendors.

Greenville State Farmers Market 1354 Rutherford Road, Greenville

Contact: Lia Sanders

lsanders@scda.sc.gov • 864-244-4023 greenvillestatefarmersmarket.com

Craft Pop-Up — Florence

February 11 • 10 am - 5 pm

Join us for a one day only Craft Pop-Up event! Shop handmade crafts by local vendors. Food trucks and seating under cover will be on-site.

Pee Dee State Farmers Market 2513 W. Lucas Street, Florence

Contact: Bob Sager

bsager@scda.sc.gov • 843-665-5154 peedeestatefarmersmarket.com

SC Beekeepers Association Spring Conference

February 24 - 25 • 10 am - 5 pm

Join us for "Show Me the HONEY!" — a 2-day opportunity to learn anything and everything about that sticky stuff! Come hear industry experts share how they manage and grow their honey operations and market their honey. Conference will include a variety of presentations and discussions, workshops, a Honey Show, and Vendor Fair. Keynote Speakers include: Bob Binney, Stephen Coy, and Marina Marchese. Registration is now OPEN online.

SIMT Florence-Darlington Technical College 1951 Pisgah Road, Florence

Contact: SC Beekeepers Association president@scstatebeekeepers.com • 864-430-3393 scstatebeekeepers.com

Introduction to Beekeeping Workshop

February 25 • 8:30 - 11 am

This workshop will introduce attendees to beekeeping. It is recommended for those thinking of starting beekeeping, beginning beekeepers, and those who are just fascinated by bees! We will explore the workings of the hive, seasonal tasks, biology, honey harvesting, diseases and pests, as well as what equipment is needed to start. This workshop is included in our 2-day spring conference registration OR may be purchased separately as a stand-alone workshop. See website for more details.

SIMT Florence-Darlington Technical College 1951 Pisgah Road, Florence

Contact: SC Beekeepers Association president@scstatebeekeepers.com • 864-430-3393 scstatebeekeepers.com

South Carolina Christmas Tree Association 2023 Winter Meeting

February 25 • 1:30 - 5 pm

Registration and socializing will began at 1:30 pm and the meeting will begin at 2:00 pm. After adjournment, members will travel to the Oceanview Seafood Restaurant for dinner. The meeting will be very informal with a Grower Tree Talk led by Tom Sawyer and ample opportunity for members to interact with fellow members about their operations and experiences. An update on the Historical Project will be presented along with a short business meeting. There will be no charge for registration for members or attendees from affiliate state associations. Non-member farms are required to pay a \$50 registration fee. This fee will be credited toward 2023 membership dues if the attendee farm chooses to join the association in the first month of attendance.

SC Farm Bureau

scchristmastrees.org

724 Knox Abbott Drive, Cayce

Contact: Steve Penland slpenland69@gmail.com • 803-366-7605

SALES & AUCTIONS

Tindal Farms Auction

February 4 • 2 – 5 pm

We accept all miscellaneous items for auction, including poultry and small animals. Cash payments must be paid in full on the day of sale. Tindal Farms auction firm Hosted by Hal Tindal.

1407 Fox Tindal Road, Pinewood

Contact: Hal Tindal

hal.tindal@outlook.com • 803-473-0171

Yon Spring Bull and Female Sale

February 18 • 11 am

Offering 200 bulls and 100 females at auction mostly registered Angus, some SimAngus and Ultrablacks. Bulls ready for service, pairs, bred cows, and bred heifers.

318 Aiken Road, Ridge Spring

Contact: Yon Family Farms

lydia@yonfamilyfarms.com • 803-622-8597

yonfamilyfarms.com

SCDA State Farmers Markets

SOUTH CAROLINA STATE FARMERS MARKET

3483 Charleston Highway West Columbia, SC 29172 803-737-4664

GREENVILLE STATE FARMERS MARKET

> 1354 Rutherford Road Greenville, SC 29609 864-244-4023

PEE DEE STATE FARMERS MARKET

> 2513 W. Lucas Street Florence, SC 29501 843-665-5154

VISIT AGRICULTURE.SC.GOV

Click on the State Farmers Markets button for more information about each location

SC Market Bulletin Subscription & Renewal Form

Mail completed form with check or money order payable to the SC Department of Agriculture to: SC Market Bulletin, PO Box 11280, Columbia, SC 29211 To subscribe with a credit card online, visit agriculture.sc.gov, click on Market Bulletin, select Subscribe to the Market Bulletin, then follow the prompts.

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Phone		Check #	Renewal ID #
Email		This is a gift	2/2/22

Market Bulletin Office

Monday - Friday • 8 AM - 4:30 PM

803-734-2536 • marketbulletin@scda.sc.gov agriculture.sc.gov/market-bulletin

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Commissioner's Office 803-734-2190

Certified SC Program

803-734-2207

Consumer Protection

803-737-9700

Fruit & Vegetable Inspection

803-737-4588 Fruit & Vegetable

Market News 803-737-4497 Hemp Farming Program

803-734-8339

Livestock & Grain Market News

803-737-4621

Market News Recording 803-737-5900

Metrology Laboratory 803-253-4052

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POLICIES FOR ADVERTISING

For our full policies, please visit: agriculture.sc.gov/market-bulletin-policies

Only ads pertaining to the production of agricultural products and related items are published. Ads are accepted for South Carolina items, even if the seller lives out of state, provided the item is in state at the time the ad is published and at the

Ads are published free of charge and in good faith. The Market Bulletin reserves the right to edit and verify ads but assumes no responsibility for their content.

Ads cannot be accepted from agents, dealers, or commercial businesses, including real estate. Sealed bids, legal notices, or consignment sales are not accepted.

SUBMITTING ADS

No matter the submission method, submissions must include the advertiser's name, complete address with zip code and county, and phone number with area code. While we don't publish the address, we need this information for our records. Do not use all capital letters.

- Online: Go to agriculture.sc.gov/market-bulletin. Select "Submit Market Bulletin Ad" and complete the form. If you include your email address, you will receive an automated reminder for a renewal.
- · Mail: SC Market Bulletin, PO Box 11280, Columbia, SC 29211. You must use 8.5 × 11 inch paper.
- Email: Send ads to marketbulletin@scda.sc.gov. Put the words "Market Bulletin ad" in the subject line.
- Fax: 803-734-0659

The deadline for submitting ads and notices is noon on Tuesday of the week **before** the publication date.

NEXT AD DEADLINE

FEBRUARY 7 • 12:00 PM



REMINDER TO ADVERTISERS

Ads are due by noon (12 pm) on the Tuesday after the latest published issue.

Any ads received after the deadline will be considered for a subsequent issue.

AQUACULTURE

BLUEGILL

50¢; Catfish, 75¢; Carp, \$12; Fi Tiger Bass, \$4; Lrgmth Bass, \$2; Minnows, \$20/lb; Tilapia, \$2 Derek Long Newberry 803-944-3058

STERILE CARP

\$12; Bluegill, \$55/100; Shlckr/Rdbrst, Chan Cats, \$65/100; Gambusia, \$40/100 Clay Chappell Richland 803-776-4923

BLUEGILL/REDEAR BREAM 50¢-\$3; Shad, \$1-\$5; Crappie,

\$1-\$3; Catfish, \$1-\$3 Cannon Taylor Newberry 803-276-0853

CATTLE

REG BLK ANG BULLS

18+ m/o, good b'line, calving ease, \$2200 Roy Hungerpiller Orangeburg 803-682-3324

ANG/SIM & ANG CROSS HEFRS

6-10 m/o, \$650+ Gerald Bedenbaugh Newberry 803-944-5026

BELTED GALLOWAY BULL

10 m/o, PB, not reg, \$800 Tommy Cumalander Newberry 803-414-2542

2 Y/O ZEBU BULL

spotted, parents on site, text pls, \$500 obo Jennifer Smolensky Colleton 843-599-2987

REG BLK ANG BULLS

14 m/o-2 y/o, \$1750+; prs & springers, \$1500+ Marc Renwick Newberry 803-271-8691

REG BRN SWISS COW

5 y/o, bred to PB Ang bull, due in June, halter broke, \$1000 Skylar Bolin York 803-627-4836

RED ANG BRED COW

Al to Select Sires 7AN466 Rainfall, bred 8/9, \$1750 **Brent Watkins** Spartanburg 864-525-9249

LINE ONE HRFRD BULLS

\$2750 ea Jim Drake Anderson 864-933-2790

JERSEY W/2 M/O CALF

being milked, \$2000 for both George Phillips Williamsburg 843-992-1964

PB REG RED ANG BULL

4 y/o, proven breeder, selling to prevent inbreeding, \$2000 Ira Jeffcoat Orangeburg 803-837-1844

PB CHAR BULLS

low BW, 8, 11 & 30 m/o, \$1500+ Lane Keasler Anderson 864-965-8666

FB RED POLL YRLG BULLS

open & bred hefrs, cow/calf prs, \$1800-2500 J Wyatt Marlboro 803-651-3086

3 PB DEXTER BULL CALVES

B-10/22, \$1250 ea or \$3000 for all Steve Vernet Spartanburg

864-363-5800 3 Y/O PB HRFRD COW

w/2nd calf, hefr, Baldy, \$1900 for pr Al Harman Lexington 803-210-5529

BLK ANG BULLS

PB, nearly 3 y/o, \$2300+ Mike Johnson Newberry 864-923-0750

REG BFMSTER BULLS

26 m/o reg blk, \$1800; 19 m/o paint bull, \$1700; 4 PB bulls, \$1300+ John Steele Lancaster 803-283-7720

BELTED GALLOWAY BULL

B-3/21, wide wht belt, 1000 lbs, should mature to 1500+ lbs, \$1250 Mike Gainey Greenville 864-616-3205

REG RED DEVON

M & F, \$750, 1 yr or less; \$1500/adults, most females are bred, del avail Ottis Wagner York 704-609-4912

REG & COMM BULLS & hefrs, confirmed bred hefrs by Reg Bull, all low BW, gentle, \$1200-2500 **Bobby Baker** Lancaster 803-804-2230

2 BLK ANG BULLS

7 m/o, \$900 ea; 4 y/o Blk Ang bull, proven producer, \$2800; 2 Blk Ang hefrs, \$800 ea Suzanne Reed Anderson 864-293-0363

WAGYU BRED HEFR

34 Wagyu 14 Ang, Al to reg Wagyu, bred 7/4, 1st time hefr, \$2500 **Bobby Page** Spartanburg 864-494-2501

8 RED BALDY HEFRS

"Hrfrd & Red Ang cross", moderate frame, 100% grass, gentle, \$1000 David Bishop Bamberg 843-209-1910

REG SIM/ANG

2 y/o, bred Al sire T5 Franchise 451 D, out of Yon Starbright, solid blk, \$3000 Paul Kicidis Union 864-429-6112

3 JERSEY HEFRS

30 m/o, 2 bred, 1 exposed, \$1500-1800 ea Robert Turner Orangeburg 803-596-6463

REG ANG BULLS

low BW, docile, exc EPDs, ready for serv, \$1500+ Rick Outen Chesterfield 843-337-1355

REG YRLG SIMANG

& Hrfrd bulls, AI sired, calving ease, vac & on feed, \$2500+ Wayne Garber Laurens 864-923-0581

REG & COMM ANG

& SimAng hefrs, open, ready to breed, vac & on feed, \$1400 Jordan Nabors Laurens 864-923-5985

FARM EQUIPMENT

ADS MAY NOT BE SUBMITTED BY COMMERCIAL DEALERS. A CURRENT FARM TAG ISSUED BY THE SCDMV IS REQUIRED ON ALL FARM VEHICLES.

HINOMOTO E18 TRACTOR

dsl, 2 cyl, 3ph, GC, \$2000 Jack Kay Greenville 864-419-1322

NH BR370 4×4 BALER

\$5500; NH 57 rake, \$1800; NH 157 tedder, 2 basket, \$750; Kubota rotary cutter, \$4500 James Miller Oconee 864-934-3574

'19 MAHINDRA TRACTOR

4 WD, 85 hp, 385 hrs, power shuttle shift, \$35,500; '20 Brown 6' tree cutter, new, \$11,500 lames Burton Saluda

803-260-9972 JD 915 FLEX HDR

in GC, \$3500 Otto Williamson Williamsburg 843-372-2692

JD 4710 SPRYR

\$50,000; KMC 4r ripper spider, \$1600; JD 328 baler accumltr, grapple, \$16,000 Jeffrey Gilmore Chesterfield 843-517-0315

2 DISC TILLER PLOW

Athens HD, GC, \$350 Marshall Oshields Union 864-426-8021

8'3PH HARROW

& hay rake w/short tongue, \$95 ea; 4'×8' trl, GC, 2whl, \$365 Kenneth Shelton Greenville 864-963-5912

BROWN BRUSH CUTTER

new blades & bolts, 6'W w/1000 rpm PTO, \$5000 Kenneth Chicos Laurens 276-445-5771

1720 8R HYD DRIVE PLNTR

KMC 8r strip till, auto reset w/Unverferth assist whls, 2015, \$45,000 Walker Nix Barnwell 803-541-1628

'75 FORD 2000 TRACTOR

gas, 36 hp, 1940 hrs, runs good, \$4800 obo Robert Knox Greenwood 864-344-0699

5×7' TRL

\$700 **Bobby Dennis** Newberry 803-924-2118

2-BTM TURN PLOW

Long mod 2014, \$250; 1r cult, w/HD frame, \$215; both 3ph Carl Agner Cherokee 864-490-0156

NH 3930 TRACTOR

1300 hrs, 2 wd, frt wts, VGC, \$12,500 Steve Sease Anderson

TRACTOR

864-304-6313

'48 Oliver row crop 60, \$8500 Mike Hill Anderson 864-332-7177

BUSH HOG 7 SHANK V RIPPER

VGC, \$3500 Will Culbertson Laurens 864-981-2474 MF 1080

\$9500; JD 4720 4wd ldr, \$32,000; Cat D7F, \$35,000; MF 1105, \$15,000; JD 3020, \$10,000 Ronald McGraw Lancaster 980-255-8584

CASE IH 22' 335VT

hyd leveling & baskets, wing gage whls, 500 acres, LN, \$50,000 Jeff Millen Chester 803-209-0893

BOX BLADE

Frontier BB2072 w/scarifies, EC, \$800 Cal Norris Edgefield 864-378-2693

CASE THRESHER

\$1000; JD grain binder & hay press, \$900 ea; more, all antiq Ed Long Laurens 864-505-6765

MF SQ BALER

\$2500; FA 400 dsl, \$1000; combine, \$1500; FA M, \$800 Jack Holbrook Anderson 864-314-1145

NH 1037 STACKLINER

FR, used last season, 105 sq bale cap, \$10,000 Allen Kirchner Aiken 803-646-0999

JD 6300 W/JD620 LDR

\$35,000; Krone AM283 disc mwr, \$8500; Pequea whl rake & Krone tedder, \$7500 ea Otis Hembree Spartanburg 864-316-1222

NH 650 RND BALER 4×6, GC, \$4000

Ed Hagan Abbeville 864-378-6992

16 DISC HARROW

pull type, GC, \$450 Gordon Hill Anderson 864-617-5413

JD 2010 TRACTOR

w/canopy, new rear tires, w/2r cult/plntrs, GC, \$7500; GMC 7000 boom, 37' w/16' dump, \$12,000 Jimmy Wilson Anderson 864-923-2348

ROTARY CUTTER 6' Bush Hog, GC, FR, \$1500; 2910 Ford tractor, dsl, PS, GC, 8 spd, 40+hp, \$6500 M Wilson Spartanburg 864-595-1136

FULL SET 2R CULTS

for D14-17 tractor, \$300 James Pruitt Spartanburg 864-316-0004

IH 1020 HDR AUGER

15', \$400; NH rnd baler, \$2700 Charles Nichols Saluda 864-445-8350

LEINBACH 3PT DIRT SCOOP

30"W×30"L bucket, 3'×3' overall, NC, \$250; Leinbach 3ph bale spike, used, EC, \$250 Elaine Jeter Richland 803-917-6243

JD 450C CRAWLER DOZER

\$12,000; 7' boom pole, \$200; old 2r rotary hoe, \$300; texts OK Franklin Brown Charleston 843-224-4711

6' ROTARY CUTTER Bush Hog brand, FR, \$1600

Aiken 803-640-2734 JD 702 HAY RAKE 8 whl, EC, \$2500 **Thomas Crosby**

Chris Johnson

Colleton

843-562-6334

HARDEE SPRAYER

140 gal, 3pt, 16', new hose & pump, EC, \$1850; 3pt Carryall, \$75 George Schwab 803-493-8021

HAY TRL

\$500; bush hog, & hay rake, \$200 ea; harrows, \$100 Gary Seay Spartanburg 864-578-8214

MF 33 GRAIN DRILL

for parts, \$225; Dirt Dog landscape rake, 5', new, \$875 F Rowe Newberry 803-271-7768

FA SUPER A W/CULT

EC, no bents or parts missing, LN tires, \$3500 Robert Yonce Aiken 803-685-7240

AC 42 7R PLNTR

shed kept, FR, good hyd cyl & tires, \$2000 Simon Miller Spartanburg 864-303-8002

'17 JD TRACTOR 4044M

EC, hyd trans, 368 hrs, \$29,500 Michael Trotter Saluda 864-992-2539

JD 4430

GWC, \$8500; MF 253, for parts, \$3500; will sell parts separately Robert Turner Orangeburg 803-596-6463

4×5 HAY BALER

Kubota BV4160, \$17,500 C Malcolm Bryant Lexington 803-604-2113

HAY SPEAR

3ph, \$100 Richard Martin Greenville 864-243-4974

JD 450E DOZER

GRC, has bad trans, \$6500 obo T Campbell Chester 803-518-0907

'48 JD B

\$2200; 12' JD pull type disc, \$900; 10' 3pt Howse mwr, \$3200; all in GC Jack Hurst Chesterfield 843-921-8574

JD 1700 MAX EMERGE

plus 6r vac plntr w/liq fert row cleaner, \$14,500; JD 6500 spryr, 60' boom, \$25,000 Joe Phillips Jr Lexington 803-600-2928

low hrs on rebuilt block, needs battery/tune-up, more, GRC, \$1200; 5' roto tiller, used little, \$800 Legrand Bunch Berkeley 843-708-7311

3 WAGONS

'61 JD 1010

30×8 no bed-all metal, for hay, \$800; 12×8 wooden bed, \$300; 16×8 metal bed, \$600 Brice Stephenson York 803-684-3418

FORD TRACTOR

new lift cyl, PTO shaft, starter, alt, tires, carb, fuel tank, frt end, & new spare parts, \$5375 Tom Kirkley Lancaster 803-246-8195

FARM LABOR

NOTICES ARE ACCEPTED FOR AGRICULTURAL WORK ONLY AND NOT FOR HOUSEWORK, NURSING, OR COMPANIONSHIP NEEDS.

FORESTRY MULCHING & **CLEARING**

clear land w/mulcher or excavator, small to lrg tracts Dakota Hollman Lexington 803-687-6382

ONSITE MOBILE WELDING

& fabrication, farm & hvy equip, fences, gates, etc Garrett Stephens Greenville 828-405-2176

DOZER/TRACKHOE WORK

build & repair ponds, demo, tree removal, land clearing, roads, free est James Hughes Greenwood 864-227-8257

NEED PERSON

for property caretaker & maintenance for horse farm, hunting retreat, & multiple properties Trey Harrell Lexington 803-960-0393

CUT & FERT

10A field Hannelore Wilson Lexington 803-606-6947

AG FENCE INSTALL

serving the Upstate, fixed knot woven wire, barb, HT elec, board, hyd post driving Taylor Chappell Abbeville 864-276-8906

NEED BOAR BREEDING SERV

to breed yng wht sow Roger Barnes Lexington 803-606-3335

FENCE INSTALLATION

& maint/repair, barbed wire, goat & horse fences, high tensile wire Sam Rasner **Pickens** 843-789-0874

TRACTOR WORK

frt end ldr, dirt blade, bush hog, chain saw trees, back hoe work w/in 20 mi David Wannamaker Calhoun 803-682-2117

LIGHT TRACTOR WORK

incl bush hogging, discing, cut up & removal of downed trees, light landscaping John Tanner Lexington 803-422-4714

LIME SPREADING

specialize in TN, call for prices Drake Kinley Anderson 864-353-9628

CUSTOM SPRIGGING

CB & Tifton 85 Bermuda grasses, statewide, lrg & sm jobs, call for more info Timmy Benton Colleton 843-908-3222

LAND CLEARING

logging clean up, stumping/ raking, building pads, ditch maint, licensed & insured, serving all of SC Ben Leonard Pickens 864-901-8155

PASTURE MGMT SERV

spray weeds, treat fire ants, fert & lime, plant pastures, Fescue, Ryegrass, Bermuda, Bahia Kenny Mullis Richland 803-331-6612

PECAN CRACKING SERV

also tumbled & blown, 50¢/ lb; whole nuts, cracked nuts, halves, \$3+ Marc Renwick Newberry 803-271-8691

CLEARING

grading, stumping, demo, hvy disking, Rome disc-dozer Keith Peterson Chester 803-633-4015

FARM LAND

FARM LAND MUST BE OFFERED FOR SALE BY THE OWNER, NOT AN AGENT. TRACTS MUST BE AT LEAST 5 ACRES UNDER CULTIVATION, TIMBER, OR PASTURE. OUT-OF-STATE OWNERS-NOT REAL ESTATE AGENTS-MAY NOW SUBMIT ADS FOR LAND IN SC.

13.36A WOODED

on big creek, Greenville Co, near Fork Shoals Rd & W Georgia Rd, \$250,000 w/ survey John Cooper Greenville 843-693-9099

WANT LAND TO LEASE

for hunting, Darlington or surrounding Co, have equip to repair & maintain property Ray Sealey Darlington 843-409-1717

132A SUMTER CO

timber, Pocotaligo Swamp, w/gov easement, duck & deer hunting, \$1100/A Horace Roberson Sumter 803-972-4800

WANT 5+A PASTURE

Fairfield, Chester, York, Lancaster, Union Cos Russell Brown Fairfield 803-718-0911

WANT 5+A

suitable for livestock, Fairfield, Kershaw Co Mason Motley Richland 803-754-3224

GARDEN

ADS ARE NOT ACCEPTED FROM COMMERCIAL NURSERIES, WHICH HAVE ANNUAL SALES OF \$5,000.

RABBITEYE BLUEBERRIES

Billy Eddins Chesterfield 843-623-2427

FIG & BLUEBERRY TREES

3 gal, \$15; grapevines, \$10; Blkberry plants, 3/\$25; Pomegranate trees, \$20 FC Noles Barnwell 803-383-4066

FRESH PRODUCE

PRODUCE MUST BE RAW AND NON-PROCESSED. RAW MILK, BUTTER, AND CHEESE PRODUCTS MUST BE PERMITTED BY THE SC DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL. AN EGG LICENSE IS NOT REQUIRED FOR ON-FARM POINTS OF SALE.

PECANS

in shell, \$2/lb; cracked & run thru sheller/blower, \$6/lb Wade ten Bensel Lancaster 803-283-4631

PECANS

in shell, 10 lb bags, \$1/lb; clean shelled, \$7/lb Jordan Harris Calhoun 843-709-3239

CHICKEN EGGS

farm fresh, \$3/dz Becky Burns Anderson 864-980-7832

BLUE RIBBON SUGARCANE

\$65/100 stalks FC Noles Barnwell 803-383-4066

CHICKEN EGGS

farm fresh, \$3/dz, \$4/18 Rose Roof Lexington 803-315-7307

GOATS / LLAMAS / SHEEP

DORPER/KATAHDIN RAM

2½ y/o, proven breeder, lrg, blk/wht, \$275 or trade Tammy Hodge Sumter 803-983-5041

(3) 2 Y/O KIKO NANNIES

& 2 y/o red/wht pure Boar buck, \$300 ea Terry Gibert Greenwood 864-993-4212

PB NUBIAN GOATS

M & F, \$200-400 Aaron Shirev Lexington 803-413-2974

MALE LAMBS

<1 y/o, 100 lbs, \$150 Ottis Wagner 704-609-4912

5 PB NZ KIKO GOATS

CDT, Famacha, reg not incl, \$300 ea Jane S Cooper Greenville 843-693-1949

% BOER % MILK GOATS

6 m/o billies & nannies, \$200 ea Philip Poole Union 864-427-1589

NGN DWARF BUCKLINGS

8 w/o, \$200 ea Diana Melton Clarendon 803-464-2992

KIKO BUCKS

reg w/DNA, \$300 George Phillips Williamsburg 843-992-1964

JACOB RAMS

7 m/o, 4 & 2 horned, \$250+; 50/50 Jacob/Finn rams, 1-2 y/o, 4 horned, blk, \$280 Allan Clark Abbeville 864-314-5226

2 NGN DWARF BILLIES

both wht, 2 y/o proven breeder, \$100; 2 m/o, \$150 Skip Price Lexington 803-465-1484

KIKO BUCKLING

B-11/22, 100% NZ, tri-color, \$400 w/o papers, \$500 w/ papers Tommy Dent Abbeville 864-447-7836

ANGORA GOATS

mature proven buck, \$200; wethers, \$175; pregnant does, \$250 **Emily Simon** Lancaster 803-627-7850

KIKO GOATS

kids, yrlngs, & adults, \$75-250 Jonathan Hardy Richland 803-730-8551

BOER/BRIAR MIXED GOATS

\$75/billy; \$100-150/nanny; photos avail Ken Evans Lee 803-464-1370

<2 Y/O SM BILLY GOAT

blk & wht w/horns, \$125 R O Atkinson Chester 803-385-8034

HAY & GRAIN

\$8/sq; \$70/rnd; rnd CQ hay, \$60; all shed kept Warren E Cokei Florence 843-319-1884

'22 CRAB GRASS HAY

1000 lb rnd bales, twine tied, \$40 Joe Johnson Berkeley 843-567-7774

'22 RYE STRAW

precut, bright yellow, \$6/bale **Edward Berger** Dorchester 843-832-9233

'22 NET WRAP 4×5 CB

limed & fert, stored outside, in Barnwell, \$60/bale Alfred Bush Aiken 803-522-3763

'22 SQ OAT STRAW BALES

clean, \$4.50 ea Tom Fink Lexington 803-622-4678

'22 MIXED GRASS HAY

\$4/bale Mills Dorn Edgefield 803-480-2899

'22 4×5 RND CB

twine, stored, \$55; field, \$40 Michael F Hallman Lexington 803-657-5526

'21 SD ALFALFA

dairy qual, 3×4×8, 1600 lbs, \$380 ea, cash sales Chris Roux Cherokee 864-906-5471

'22 HQ RND CB

\$70; CQ rnd, \$55; HQ sq, \$8, all shed kept **Eddie Phillips** Sumter 803-486-0081

FESCUE

50 lb sq's, GQ, \$12, Landrum area p-up David Meeks Spartanburg 864-316-9572

WHEAT STRAW sq, \$5/bale Jason Nichols Saluda 864-992-2753

'22 4×54" RND CQ CB

net wrap, well fert, shed kept, \$65, no del Rickey Meetze Lexington 803-892-3573 '22 HQ CB

\$8/bale Ike Hardwick Darlington

843-858-2103 25 BALES OF OATS HAY string wrap, shed kept, \$60/bale Harroll Stockman Newberry

803-924-7878 **WHEAT STRAW**

4×5 net wrap, \$40 ea Richard Knight Kershaw 803-427-6440

'22 4×5 RND CB net wrap, NR, well fert, stored outside indiv on pallets, \$70/bale Eddie West Aiken 803-507-8205

HQ TIMOTHY ORCHARD

45 lb bales, \$13 ea; Alfalfa, \$15.50 ea; hay cubes of 21 bales, del can be arranged Joseph Henson York

803-448-5287 '22 4×5 HQ CB

net wrap, fert & lime, NR, shed kept, \$75, del avail for fee **Eddie Chavis** Barnwell 803-671-3108

SQ RYE STRAW

\$6/bale; 4×5 CB, \$65; 4×5 Crabgrass, \$48; shed kept Larry McCartha Lexington 803-606-2499

'22 CB NET WRAP

HQ 4×5, \$70; 4×4, \$50; CQ, 4×5, \$60, all shed kept Rav Wells Clarendon 803-460-4676

Bamberg 803-614-4665

tight wrap, \$60/bale

'22 4×5 CB/MIX GRASS cow/ goat hay, \$40 ea, \$35/6+; ear corn, 50 lb, \$8, no del Ralph Fairrington Lexington 803-622-0961

'22 FESCUE

'22 4×5 CB

Johnnie Legree

in barn; '22 Spring Ryegrass, \$80, less for 10+, both 4×5 Britton McCarter York 704-913-6083

HOGS / PIGS

FB BERKSHIRE PIGS

7 cut males, \$150 ea J Painter Spartanburg 864-641-9855

HERITAGE BREED CROSS PIGLETS

1 gilt, 2 barrows, B-11/28, \$120 ea James Doster Kershaw 706-296-9495

PIGLETS

Kunekune Duroc mix, B-11/7, uncut males, 1 red/1 tan w/blk spots, \$125 Paige Hicks Aiken 803-645-3933

RED WATTLE PIGLETS

8-12 w/o, \$100-125 Ottis Wagner York 704-609-4912

4 BERKSHIRE PIGLETS

Al breed, 6 w/o, \$80-150 Andy Butcher Charleston 864-529-1614

MISCELLANEOUS

WOODMIZER DESIGN SAW MILL

hyd drive & lift, GWC, \$6500; produce cooler, 7'×8', \$1800 Danny Hege Barnwell 803-793-4187

MARTIN GOURD RACKS

hay rake umbrella design, 12 gourd hangers, \$60; heads only, 16 hangers, \$70 Pete Jordan Darlington 843-332-3219

FULL CUT LUMBER

 $(61) 2 \times 6 \times 8, (65) 1 \times 6 \times 10, (3)$ 2×4×8, air dry, \$400 obo Randy Blackmon Lancaster 803-804-2196

CARPENTER BEE TRAPS

sold & shipped in lots of 5, \$85 incl ship Bill Timmerman Aiken 803-640-6265

HONEY BEES

5 frame Italian honey bee nucs, \$170, early Apr del, call now to reserve Dale Starnes Lancaster 803-577-7871

STEEL FERT TANK

6000 gal on skids, VGC, \$500 Charles Horger Calhoun 803-707-1493

RADIATOR

for JD 6620 combine, \$300 Otto Williamson Williamsburg 843-372-2692

ORGANIC WORM CASTINGS FERT

SC Certified Product, \$20/30 lb bag; disc on 10+ bags Maryann Little Lexington 803-530-9219

HARDWOOD LUMBER

air dried 6 mon, 1×6×8' poplar, \$24 ea; 1×8×8' red & wht oak, \$40 ea R Anderson Greenville 864-234-2918

LRG SANDBLASTER

holds 250 lbs, stored inside, \$125; antiq oil dispenser, 50 gal, crank pump, GWC, \$275 **Edward Berger** Dorchester 843-832-9233

SAND CLAY & TOPSOIL

5 ton load, \$60/sand clay; \$80 /topsoil, del w/in 20 mi; rock or sand, \$2/mi del David Wannamaker Calhoun 803-682-2117

(2) 6000 LBS TRL AXLES

w/drum brakes, \$300; JD LA115 riding mwr, w/36" deck, GC, \$300 Steve Vernet Spartanburg 864-363-5800

CEDAR MULCH

MONKEY GRASS

Gardenia, \$10 ea

Pickens

864-855-2565

Robert Yonce

803-685-7240

Aiken

CANNAS

Woody Ellenburg

aka Liriope, Hosta, \$4 ea; Iris,

Daylily, \$5 ea; Hydrangea,

Pres red, Bengal tiger &

yellow, \$1 ea, no ship

\$50/p-up load; rnd 7' cedar fence posts, \$3 each; cedar poles, \$5 ea/8', \$7 ea/10' & \$9 ea/12'; more Andy Morris Newberry 803-276-2670

DEHORNING TOOLS

& dehorning, hoof cleaning, more, \$25 ea or \$90 for all George Whittle Edgefield 803-275-3729

USED NURSERY POTS

1 gal, 15¢; 2 gal, 25¢; 3 gal, 40¢; 5 gal, 65¢; 7 gal, 90¢ Brian Gray Greenville 864-908-9777

DSL WELDER/GEN

AC/DC, Miller Bobcat 250D, low hrs, 50' of leads, \$5500 Stanley Taylor Chester 803-789-5236

'67 JD LAWN TRACTOR

mod 110-112, deck w/metal rnd fenders & seat, \$675 Greg Alewine Lee 803-229-2322

ROLLS OF BALER TWINE

for sq baler, \$25/roll, disc on 10+ rolls George McCoy Chesterfield 843-307-8866

GOURDS

for Purple Martin bird houses or crafting needs, med, \$4; lrg, \$6 Glen Clamp Lexington 803-673-8013

19 KUBOTA DSL ZERO TURN

LN, 50 hrs, mod ZD 1011, \$12,950 Jerry Comeaux Spartanburg 864-992-3869

2 USED 3500 BU GRAIN BINS

GC, disassembled, \$6000 Will Culbertson Laurens 864-981-2474

6'-25'L1×6" CEDAR LUMBER

cedar posts & util poles, \$1-2.50/ft James Burns Laurens 864-918-6308

HUSQVARNA RIDING LAWN MWR

hydro drive, 42" cut, 15 hp Kawasaki, new battery, belts, & blades, \$750 obo Otis Hembree Spartanburg 864-316-1222

OLD COMP FARM BELL

old, #3, \$350; xl farm bell, w/wheel, comp, \$1200; #20 hash pots, \$200 ea; #15, \$150; more Perry Masters Greenville 864-561-4792

RND CEDAR POSTS

cut to var sizes, 4-10" dia, 6-12' L, \$6-\$12 ea, depend on size; cut 4×4, \$2/bdft **Douglass Britt** McCormick 864-391-3334

RADIATOR

for IH 715 combine, \$300; new 5hp elec motor, bought for grain auger, will work w/anything, \$800 Jason Nichols Saluda 864-992-2753

55 GAL FG DRUMS

metal, \$20 ea; plastic drums, 30 & 55 gal, solid tops, \$15 & \$20 ea; 275 gal Port tow tanks, \$50 ea Philip Poole Union 864-427-1589

LINCOLN WELDER

w/24 hp Koehler eng, long leads, more, \$500; high tensile wire, sev rolls, I new, 3+ used/rolled up, \$200 Ken Evans 803-464-1370

HOMELITE 5HP IRRIG PUMP

new, \$275; lot hose, \$75; Rainbird irrig sprinklers, \$20 ea George Schwab York 803-493-8021

REAR WHL WTS

for FA Cub & FA-A thru 140, \$100/set; 2 mule hay rake whls, EC, \$50 Robert Yonce Aiken 803-685-7240

PECAN WOOD

you cut & haul, easy access, 15¢/truck load Manning Richardson Lee 803-459-2056

FIBERGLASS BEAN STICKS

7'L, \$1 ea; 240 lb hanging cotton scales, \$100; 39 gal hash/stew pot, \$500 R Long Newberry 803-924-9039

BACK WHEEL

for bush hog, \$25; old farm bell, \$50 Richard Martin Greenville 864-243-4974

OIL TANK

\$75; plastic barrels, \$8 ea; bar joists, \$15 ea; port tank, \$35 Gary Seay Spartanburg 864-578-8214

2 DUAL TRACTOR TIRES

& rims w/7 clamps, 18.4×38 clamp on, \$600 William Dozier Barnwell 803-671-1393

20 GAL AIR COMPRESSOR

Bobby Dennis Newberry 803-924-2118

90 GAL GATOR BED SPRYR

JD LP20853, \$700 Cal Norris Edgefield 864-378-2693

OLD BARN BOARDS

& timbers, priced according to Dim & cond, \$1+ Barry Hossler Saluda 803-622-3906

2 SADDLES

cloth & leather, \$250; more Paul Kicidis Union 864-429-6112

PLANTS & FLOWERS

ADS ARE NOT ACCEPTED FROM COMMERCIAL NURSERIES, WHICH ARE DEFINED AS HAVING ANNUAL SALES OF \$5,000.

CAMELLIAS

Sycamore, Mimosa, Carolina Sapphire, \$20; 1 gal Azaleas, Tea Olives, Boxwood, \$5; 3 gal Azaleas, \$10 FC Noles Barnwell 803-383-4066

OAK TREES

5'T, \$10 ea Brian Gray Greenville 864-908-9777

INDIA BLUE PEACOCK

Jemima Fellows Aiken 803-443-8572

in flight pen, min purchase of 10, \$7 Wayne Green Clarendon 843-373-2150

STAGS

7 m/o Sweater, \$25; 10 m/o Sweater & 10 m/o Kelso/ Sweater, \$50 ea; Sweater hens, \$15-25 Russell Goings Union

20 SERAMA BANTAMS

6 BLUISH HOMERS

& Guinea trios \$50; multi spur Blk Sumatra, \$100/5 adults; Motted Bantam Cochins, \$15 **Thomas Waters** Colleton 843-696-6627

CHICKS

POULTRY

SHOW STOCK OE BANTAMS wht, BB Red, Fawn Duckwing, Silver Duckwing, \$30-40/pr Harold Dunagin Greenville 864-630-0758

2 HENS 1 ROO

\$15 ea, must buy all & p-up Wayne Goude Georgetown 843-558-7150

GAME

Warhorse, Flarry Eye Greys, Hatch, Kelso, \$25+/hen; \$50+/roo Philip Poole Union 864-427-1589

CHICKENS

Buff Orpingtons, Blk Australorp, started laying 11/1, \$30 ea Robert Turner Orangeburg 803-596-6463

GUINEAS FOWLS

var kinds, \$20 ea, disc on multi taken LaVern Raber Pickens 864-868-8015

BOB WHT QUAIL

flight & weather cond, \$5 ea John Reed Sumter 803-464-5757

RABBITS

REX

all colors, yng, \$15 & \$20 ea; grown bucks, \$15 ea; LA cottontails, grown bucks, \$15 ea; does, \$25 ea; yng, \$15 ea Philip Poole Union

864-427-1589 LA COTTONTAIL CROSSED

on MS cane cutter, \$10 ea Danny Cook Newberry 803-924-6953

LA COTTONTAILS

\$10 Duman Wicker Newberry

803-537-7222 **BREEDER RABBITS**

mostly does, Lionheads, Holland Lops, & Dutch, \$20 ea Harold Dunagin Greenville 864-630-0758

SEED

ADS MUST BE ACCOMPANIED BY A **CURRENT SEED LAB TEST.**

SOYBEAN SEED

Glyphosate tolerant, w/ no patent, cleaned in 50 lb bags, G-93%, D H SD + G-93%, \$20/bag Jeffrey Gilmore Chesterfield 843-517-0315

WANT -LIVESTOCK

EACH AD MUST LIST SPECIFIC ANIMALS.

5-50 WHT HOMER **SQUEAKER PIGEONS**

Thomas Waters Colleton 843-696-6627

GUINEAS EGGS

for hatching, prefer 2 dz Wilmer Schaff Chesterfield 843-498-6622

SILVER SEBRIGHT TRIO

Tommy Axson Greenville 864-350-1450

6 m/o, friendly, \$200

CHUKAR QUAIL

864-426-2309

\$50 Pauline Lane Sumter 803-464-5730

\$10 ea; hens & roos, \$20 ea Mike McBride Anderson 864-992-4301

usable 60 or 66" bucket & Ford 1120 grill John Pieniadz Dorchester

SALVAGE KRONE AM282

Jeff Millen Chester 803-209-0893

G-AC OR FA CUB TRACTOR

w/cults P C Rikard Lexington

Simon Miller

Spartanburg

864-303-8002

CANOPY & ROLL BAR

for JD 3020; canopy for JD 4620 Ashley Rowe Newberry 803-940-0860 10' GRAIN DRILL

limmie Rivers Chesterfield 843-634-6849

USED AG REAR TIRES FR

Tim Penninger Charleston 843-670-4437

2R JD 25B CORN PLNTRS in WC or repairable

803-416-7712 **SMALL TRLS** 5×8 cargo style Mike McBride Anderson

Marion Mackey

Lancaster

864-992-4301

& D7G w/KG blade & root rake Scott Langston Oconee

for Super C tractor, ok if it needs to be rebuilt Debbie Wade Union

jug, more

STONEWARE MOLASSES

Leo Eubanks Aiken 803-335-7796 **5V CRIMP TIN**

803-682-2117

for raking, top prices paid, American owned David Shull Lexington

ANY SIZE WASH POTS

syrup kettle, anvils, lrg coffee grinder, old lighting rod w/ balls & weathervane, more Perry Masters Greenville 864-561-4792

goes into 500 gal dsl tank Charles Nichols Saluda

FERT SETUP for JD 7000 plntrs Ashley Rowe Newberry 803-940-0860

864-992-2753

WASH POTS

any size & Blksmith anvils, farm bells & cracked bells for parts R Long Newberry 803-924-9039

WANT - FARM EQUIPMENT

BUSH HOG 2245-QT LDR

843-922-2158

DISC MWR

w/good slides, 9'

803-609-6207

pull type, in EC & FR

NH 1003 STACK WAGON

in GWC for Ford 640-12×28 rim, will seat 11 to 14×28 tires

LDR FOR 4440 JD TRACTOR

864-723-0125

CARBURETOR

WANT - MISCELLANEOUS

803-581-5050 **ELEC FUEL TANK PUMP** sauerkraut crock, vinegar

any old farm equipment or metal items David Wannamaker Calhoun

FIELDS OF LONG LEAF **STRAW**

803-318-4263

STUDY FINDS LINK BETWEEN EVOLUTION AND HERBICIDE RESISTANCE

BY DENISE ATTAWAY, CLEMSON UNIVERSITY

A study of one of the worst weed-control problems facing farmers worldwide – herbicide resistance – has helped a team of scientists determine the genes behind an evolutionary plant trait.

The trait is NTSR, or non-target site herbicide resistance. Clemson University associate professor Christopher Saski is collaborating with researchers from Rothamsted Research in the United Kingdom, the University of Copenhagen in Denmark, and Bayer Crop Science for a study to understand the origins of this trait. The researchers believe this knowledge ultimately may help usher in new herbicides and improved crop management.

"Herbicides are designed to a specific target in plants," said Saski, an associate professor of systems genetics in Clemson's Plant and Environmental Sciences Department.

"Historically, the type of resistance farmers have dealt with is called 'target-site.' This is where the plant incurs a mutation in the herbicide's target, resulting in the herbicide no longer being effective so that it no longer kills the weed," he said.

Target-site resistance typically is linked to a specific herbicide or group of herbicides and is easy to identify and manage. The more

complicated problem is "non-target site resistance," also known as "metabolic resistance." NTSR involves more changes in the plant than just the target site.

"Non-target site herbicide resistance occurs when the plant is able to detoxify the herbicide or when the herbicide does not reach its intended target," Saski said. "This form of resistance is much more difficult to identify and manage. This is a really bad situation because it causes the loss of multiple options for weed control."

The study focuses on black-grass, a grassy weed that is native to Europe and Asia and has been introduced to many other regions of the world, including North America.

Black-grass is considered the most noxious weed of small grains in Europe. It is difficult to control because it is resistant to many herbicides and completes its lifecycle within the cereal crop growing season. It is also a prolific seed producer, with each plant capable of producing thousands of seeds, allowing uncontrolled infestations to grow rapidly.

Efforts have been made to control black-grass with chemistry but that has led to widespread multiple-resistance to herbicides, especially post-emergent herbicides, which are used after the plant has emerged from the soil.

Pre-emergent herbicides (Flufenacet, pendimethalin, or diflufenican) are more effective



Clemson University researchers are collaborating with researchers from Rothamsted Research, the University of Copenhagen and Bayer Crop Science to better understand non-target site herbicide resistance in black-grass. Photo courtesy of Rothamsted Research.

but NTSR is beginning to threaten these actives too, reducing the available options for controlling this weed.

Researchers at Rothamsted Research have spent years developing the genetic study populations used, two that have independently evolved NTSR and one that was susceptible to herbicides.

To develop a foundation from which to study heritable traits in black-grass, the researchers created a "roadmap" to show where the genes are located on chromosomes. The researchers used genetic analysis techniques to compare the two study populations that uniquely evolved NTSR, to determine genes involved in the trait.

A fundamental question the researchers asked was, "Do traits that evolve independently have the same genetic basis?" Their answer is, "possibly."

"Whilst we were keen to highlight the genes involved, we also wanted to compare how similar this trait was in different populations," said David Comont, research scientist at Rothamsted Research. "Understanding how variable this trait is from one population to another can help us understand how best to diagnose and manage this resistance, whilst also shedding light on the evolutionary processes involved."

The researchers found some overlapping genes involved, as well as some unique ones.

"This suggests this resistance involves a shared 'core' set of genes, within a uniquely evolved profile

or 'fingerprint' from one population to the next," Saski said.

Since the beginning of time, plants have changed their genetic makeup in response to stresses such as heat, drought, as well as herbicides. Weed resistance to herbicides is increasing worldwide and threatening global food security. Saski said this study can help plan for the future.

"These findings have wide significance for understanding the potential for rapid plant adaptation under novel and changing environments," Saski said. "Knowledge of the genes (and how they are regulated) that confer NTSR can be used in the design of

new monitoring and mitigation strategies as well as novel herbicides, as well as to help combat herbicide-resistant weeds."

Data were processed using Clemson's primary high-performance computing (HPC) resource, the Palmetto Cluster. This supercomputer is used by researchers, students, faculty and staff from a broad range of disciplines for a wide range of research.

In addition to Saski and Comont, other researchers involved in the study include Lichun Cai from Clemson, Dana MacGregor and Claudia Lowe from Rothamsted Research; Roland Beffa and Bodo Peters from Bayer Crop Science and Paul Neve from the University of Copenhagen.

A paper about the research has been published in New Phytologist.

SC NEW AND BEGINNING FARMER PROGRAM ACCEPTING APPLICATIONS FOR 2023

BY CLEMSON UNIVERSITY

South Carolinians looking to launch or grow a farm business have access to comprehensive entrepreneurial education and business training thanks in part to a \$600,000 federal grant.

The grant was awarded in 2022 from the United States Department of Agriculture National Institute of Food and Agriculture (USDA-NIFA) and supports Clemson University's South Carolina New and Beginning Farmer Program (SCNBFP) through 2024.

SCNBFP is a Clemson Extension Agribusiness public education program focused on enabling new and beginning farmers to be successful, productive and innovative members of their local agricultural community by providing them with the tools, knowledge and skills necessary to be successful

entrepreneurs, sound business managers, exemplary stewards of the natural environment and successful marketers of the unique products they create.

"One in four South Carolina producers are considered new and beginning farmers with less than 10 years of experience," SCNBFP Director and Clemson Extension Agribusiness Agent Ben Boyles said. "These emerging farmers need targeted training and technical assistance to make sure they have the skills necessary to sustain and grow their new farm businesses. Our program helps participants accelerate the development of their farm business so they can accomplish their goals faster while helping to improve access to healthy, locally produced food for South Carolina consumers."

To date, the SCNBFP has graduated over 450 new and aspiring farmers from the cohort program.

Registration for the 2023 cohort program is now open to any legal resident of South Carolina, at least 18 years of age, who is just beginning to farm or who has actively farmed for less than 10 consecutive years.

As many as 50 applicants will be accepted for the 2023 cohort program. Additional information, including program outline, workshop schedule, fee structure and an online application can be found at scnewfarmer.org. The deadline to apply is February 20, 2023.

6

CLEMSON RESEARCHER USES COMMON MILLET/KUDZU TO CREATE BIODEGRADABLE FOOD PACKAGING

BY DENISE ATTAWAY, CLEMSON UNIVERSITY

A Clemson University postdoctoral researcher believes she has found a way to use kudzu to create a biodegradable food packaging film as an alternative to plastic.

Sneh Bangar, who graduated from Clemson with a doctoral degree in packaging sciences in December 2022, hopes her research will lead to the use of pearl millet starch and plentiful kudzu vines to put a dent in the roughly 400 million tons of plastic waste produced on Earth each year.

Her dissertation – Development, characterization and application of pearl millet starch-based nanocomposite films reinforced with kudzu cellulose nanocrystals – describes a process to create a biopolymer-based film called Biopack from pearl millet starch reinforced by kudzu weed cellulose nanocrystals.

Biopack is a starch-based film designed to be used once and then to biodegrade.

"The accumulation of plastic waste has created serious human, wildlife and environmental problems," Bangar said. "Because of increasing consumer consumption, post-consumer packaging has become a major source of plastic waste. There is a great need to develop alternative packaging materials which are environment-friendly, economical and effective."







Her research uses cellulose nanocrystals from kudzu to reinforce pearl millet starch-based biopolymer films. Pearl millet is a warm-season crop grown throughout the United States for animal feed and fodder. About 70% of each pearl millet grain is starch, which is a renewable, natural and biodegradable polymer.

Starch-based films have some practical limitations, including poor processibility, limited strength and limited high-water absorption capabilities, but modifications can be made to overcome these constraints.

When making starch-based film, starches are reinforced with natural fibers, such as cellulose, a complex carbohydrate that comprises about 33% of all vegetable matter. Humans cannot digest cellulose, but animals such as cows and horses can.

"Cellulose is the most abundant renewable natural polymer on earth," Bangar said. "Using cellulose nanocrystals to reinforce starch improves functionalities of starch-based films. This research is important because not much work has been done to explore the cellulosic fibers of weed species such as kudzu."

Kudzu is a weed found throughout most of the southeastern United States. Some estimates suggest it may cover 7.4 million acres in the South.

Kudzu grows well under a wide range of conditions and in most soil types. Although it has been found as far north as Pennsylvania, kudzu grows best where winters are mild, summer temperatures are above 80 degrees and annual rainfall is 40 inches or

more. It is a vigorous weed that can grow enough to smother out neighboring plants or trees. Vines can also cover nearby structures, utility poles, farm fences and more. In addition, kudzu can create environmental problems such as shading out native species in forest understories, altering soil chemistry and decreasing native biodiversity.

Kudzu control is expensive and can take several years to manage. Michael Marshall, Clemson Cooperative Extension Service weed scientist, said herbicides – imazapyr and glyphosate – most often are used to manage kudzu. But this is not an easy task.

"The taproot of each kudzu plant can be up to 7 inches in diameter and 6 or more feet in length," said Marshall, who is stationed at the Edisto Research and Education Center in Blackville, South Carolina. "These massive storage roots are why kudzu is difficult, almost impossible, to control once established."

Because kudzu grows abundantly throughout the South and is difficult to control, Bangar believes it would be beneficial to explore new ways to use the plant. Her lab is the first to isolate nanocrystals from kudzu to develop starch-based films reinforced with kudzu cellulosic fibers. In addition to cellulosic fibers and starch, the packaging material also contains clove bud oil.

Bangar used this film to store grapes in a cold setting. After 15 days, she found the grapes had maintained their weight, firmness and soluble solids. Soluble solids in grapes include sugars, organic acids, phenolic compounds, nitrogenous compounds and structural polysaccharides. Total soluble solids are used to estimate grape quality.



"This suggests starch-based films reinforced with kudzu cellulosic fibers and clove bud oil have the potential for commercial packaging of foods during short storage periods without affecting food quality and sensory attributes," Bangar said.

The best way to dispose of Biopack is by composting. Biopack is designed to completely degrade within 3–4 weeks of disposal. It is designed to degrade into water and provide natural nourishment to the environment. If put into waste bins, the packaging will biodegrade on its own.

As she continues her research, Bangar is focused on developing Biopack for commercial use. Her hope is the product will be used to reduce plastic waste.

"Currently, the cost to commercially develop this biodegradable film is more expensive than plastic," she said. "But we will continue our study. We hope to produce a film that can coexist with current manufacturing operations. Our focus is to develop active packaging films for wider market acceptability. We want to reduce rather than replace the amount of waste humans are generating."

Bangar studied for her doctorate under the guidance of Clemson professor William Scott Whiteside. In addition to her dissertation study, Bangar also has participated in other food packaging research. A catalog of articles about her research can be found at bit.ly/Bangar_Research.

2023 SOUTH CAROLINA CHEF AMBASSADORS ANNOUNCED

COLUMBIA — (January 26, 2023) Today, three chefs were appointed South Carolina Chef Ambassadors for 2023.

Lt. Gov. Pamela Evette made the announcement on behalf of Gov. Henry McMaster, along with Commissioner of Agriculture Hugh Weathers and Department of Parks, Recreation & Tourism Director Duane Parrish.

"We're proud to have these three outstanding chefs represent South Carolina this year as Chef Ambassadors," Gov. McMaster said. "The incredible culinary skill of these chefs and other chefs like them around our state greatly strengthens our cultural heritage and helps to bring millions of visitors to our state each year."

Chef Ambassadors represent South
Carolina through culinary events and promotional opportunities. This is the ninth year of the program, which was enacted in 2014 to highlight
South Carolina as a top culinary destination. The program unites agribusiness and tourism, two of the state's largest industries, which together contribute tens of billions of dollars to the state's economy each year and account

"The Chef Ambassador program is a unique example of collaboration between two industries that drive our economy, bring visitors to South Carolina, and

for hundreds of thousands of jobs statewide.

help feed the world," said Lt. Gov. Evette.

South Carolina Chef Ambassadors prepare dishes using Certified South Carolina produce, meats and seafood, supporting local farmers and highlighting our state's food traditions.

"Together, chefs and farmers highlight our state's agricultural roots and fresh, seasonal foods," said Commissioner of Agriculture Hugh Weathers. "The Chef Ambassador program also helps lift up rural South Carolina and support South Carolina agriculture."

South Carolina's thriving restaurant industry is a key dimension of its appeal as a global tourism destination.



Left to right: Commissioner of Agriculture Hugh Weathers, Lt. Gov. Pamela Evette, Chef Erica McCier, Chef Rob Masone, Chef Marcus Shell, and Department of Parks, Recreation & Tourism Director Duane Parrish.

"From our busy Main Streets to our off-the-beaten-path backroads, South Carolina cuisine is as diverse as it is mouthwatering," said Duane Parrish, Director of the South Carolina Department of Parks, Recreation & Tourism. "When visitors come to South Carolina, they are lured by both our landscapes and our flavors – and when they leave, they leave craving their next chance to return for more. The Chef Ambassador program showcases some of the best bites the state has to offer, and the 2023 class is poised to further elevate South Carolina's rich culinary scene."

The 2023 South Carolina Chef Ambassadors are:

CHEF ERICA MCCIER

Indigenous Underground | Abbeville, South Carolina

Chef Erica, also known as Chef Trudy, is the owner and executive chef of Indigenous Underground in historic downtown Abbeville. Formerly a schoolteacher, Chef Trudy went to culinary school after overcoming major health setbacks, and went

on to open a catering business known as Trudy's Personal Chef & Catering and co-found Off Tha Hook Seafood & Grill. Her menu at Indigenous Underground mixes Southern food and global influences.

CHEF ROB MASONE

Kounter | Rock Hill, South Carolina

After building an extensive resume as a chef across the country, Chef Rob returned home to Rock Hill to open Kounter in 2020. The Rock Hill restaurant is home to the historic Friendship Nine Sit-In lunch counter, which has given Chef Rob a landing place for his innovative culinary creations.

CHEF MARCUS SHELL

39 Rue De Jean | Charleston, South Carolina

A New England native with a seafood background and classic French culinary training who graduated from Le Cordon Bleu Boston, Chef Marcus honed his skills in some of Boston's finer establishments. He is now Executive Chef at Charleston's beloved French brasserie, 39 Rue de Jean.

To learn more about the program and past Chef Ambassadors, visit <u>discoversouthcarolina.com/</u> chef-ambassadors.

SCHOLARSHIP OPPORTUNITY AVAILABLE FOR STUDENTS IN AGRICULTURE OR AN AGRICULTURE-RELATED FIELD

USDA 1890 SCHOLARS PROGRAM ACCEPTING APPLICATIONS UNTIL MARCH 15

BY SC STATE UNIVERSITY

ORANGEBURG, S.C. – The United States Department of Agriculture (USDA), along with SC State University 1890 Research & Extension Program, is now accepting applications for the USDA/1890 National Scholars Program.

Selected scholars are awarded full tuition and fees. The scholarship also covers books, room and board.

"One of Secretary Tom Vilsack priorities is to bring in the NexGen (Next Generation) of employees and leaders to USDA," said Travis Johnson, USDA liaison. "The USDA 1890 Scholars Program is aimed at bolstering educational and career opportunities for students from rural and underserved communities. This a tremendous opportunity for young energetic students to graduate from college without student loans and have a full-time position waiting on them." said Johnson.

High-school seniors entering their freshmen year of college, rising college sophomores and juniors are eligible to apply for this scholarship. To apply, the applicant must major in agriculture or an agriculture-related field must have a GPA of 3.0 or higher, a minimum SAT score of 1080 or ACT score of 21 (for high school applicants) and have been accepted to or currently enrolled at an 1890 institution.

Selected students are required to intern with the sponsoring agency each summer. After graduation the student is converted to a full-time employee if he or she successfully completes the required academic and summer work requirements of the program, noted Johnson.

Students majoring in the following disciplines are eligible to apply:

- Accounting
- Agribusiness
- Biology (Non-Medical)
- Business
- Chemistry (Non-Medical)
- Civil Engineering
- Computer Science
- Economics
- Family and Consumer Science
- Marketing
- Management
- Nutrition

"The USDA 1890 national scholars program is a great opportunity for students to advance their careers in the agricultural fields," said Dr. Louis Whitesides, vice president and executive director of 1890 research & extension. "The agricultural industry plays a major role in the United States, as

it accounts for nearly 22 million jobs. We want to position our students to be in the forefront in their respective fields leading and taking agriculture to a new level."

The partnership established between USDA and 1890 institutions aims to increase the number of agriculture, food, natural resource sciences and other ag-related disciplines amongst 1890 schools.

For more information on the 2023 USDA 1890 Scholars Program and to apply online, visit <u>usda</u>. gov/partnerships/1890NationalScholars.

For more information or to receive help in applying to the UDSA 1890 scholarship, contact Travis Johnson, USDA liaison, at (202) 596-4442 or <u>travis</u>. johnson@usda.gov.

USDA is an equal opportunity provider, employer and lender.

SC State University 1890 Research & Extension, in cooperation with the United States Department of Agriculture, prohibits discrimination in its programs on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status.

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